

Technology-Enhanced Laboratory Teaching Experience for Electrical Engineering and Electronics Students

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Abstract

Teaching a large multicultural cohort is often a challenging task, and it becomes more challenging when it comes to laboratory teaching where students carry out practical work. Students often complain about the quality of delivery regarding the support from teaching assistants and technicians, and the amount of personalised feedback they get subsequently. Since cohort sizes are increasing every year, a serious sustainability issue therefore arises. Students in such cohorts may eventually feel disengaged because they are not having a personalised experience, leading to lack of enthusiasm that may jeopardise teaching and learning process. With the physical capacity restriction of laboratories, the ultimate challenge is to mitigate the increase in numbers and provide the same or even better quality delivery with the available resources and under scarcity of budget. This paper presents solutions to the aforementioned problems by implementing a package of transformational change delivered in a planned, incremental fashion over a period of 5 years to bring a notable improvement to the overall laboratory and practical coursework provision by employing a number of innovative technological approaches to enhance student experience. This is particularly timely as the sharp increase in student numbers means that such tools will be used increasingly. Student feedback has improved in a steady and quantifiable manner as a result of applying these tools, and satisfaction rate has gone up from 68% to 88% in three academic years. Also, the number of student enquiries has reduced dramatically, an indication of satisfaction and clarity of the laboratory management processes, signposting and pro-active addressing of student needs.

Keywords: Large group teaching, multicultural cohorts, technology, enhanced teaching, student engagement, student experience

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